

CLAIMS

What is claimed is:

Claim 1. An electric power steering system comprising:

an electric motor disposed in a vehicle to apply torque to a steerable wheel;

a vehicle speed sensor, said vehicle speed sensor generating a vehicle speed signal;

a controller coupled to said vehicle speed sensor and said electric motor;

wherein said controller generates a scheduled compensated torque command to said electric motor, said scheduled compensated torque command based on at least one of a torque command signal, a compensated torque command signal, and a blend of said torque command signal and said compensated torque command signal, wherein at least one of said torque command signal, said compensated torque command signal and said blend is based on said vehicle speed signal.

Claim 2. The system of Claim 1 wherein said scheduled compensated torque command is based on a blend scheduling signal.

Claim 3. The system of Claim 1 wherein said blend scheduling signal is based on a look-up table responsive to said vehicle speed signal.

Claim 4. The system of Claim 1 wherein said torque command signal is based on a torque signal and is indicative of a desired assist torque for said steering system.

Claim 5. The system of Claim 1 wherein said compensated torque command signal is based on applying a compensator to said torque command signal.

Claim 6. The system of Claim 5 wherein said compensator is responsive to a blend scheduling signal, wherein coefficients of said compensator are based on said blend scheduling signal.

Claim 7. The system of Claim 5 wherein said compensator comprises a filter configured to modify spectral content of said compensated torque command signal.

Claim 8. The system of Claim 7 wherein said compensator comprises at least one of: at least one pole, at least one pole and at least one zero, and a schedulable gain.

Claim 9. The system of Claim 7 wherein said compensator comprises a frequency based notch filter configured to maintain stability of a torque control of said electric power steering system.

Claim 10. The system of Claim 1 wherein said blend comprises a combination of said torque command signal and said compensated torque command signal, said combination responsive to a blend scheduling signal.

Claim 11. The system of Claim 1 wherein said blend comprises a selectable threshold for scheduling a combination of said torque command signal and said compensated torque command signal.

Claim 12. The system of Claim 1 wherein said scheduled compensated torque command is configured to facilitate characterization of at least one of: system stability, torque disturbance rejection; and input impedance.

Claim 13. The system of Claim 1 wherein said scheduled compensated torque command is configured to characterize on-center feel of said torque control of said electric power steering system.

Claim 14. A method of controlling an electric power steering system, the method comprising:

receiving a torque command signal;

receiving a vehicle speed signal responsive to a speed of a vehicle; and

generating a scheduled compensated torque command, said scheduled compensated torque command based on at least one of said torque command signal, a compensated torque command signal, and a blend of said torque command signal and said compensated torque command signal, wherein at least one of said torque command signal, said compensated torque command signal and said blend is based on said vehicle speed signal.

Claim 15. The method of Claim 14 wherein said scheduled compensated torque command is based on a blend scheduling signal.

Claim 16. The method of Claim 14 wherein said blend scheduling signal is based on a look-up table responsive to said vehicle speed signal.

Claim 17. The method of Claim 14 wherein said torque command signal is based on said torque signal and is indicative of a desired assist torque for said steering system.

Claim 18. The method of Claim 14 wherein said compensated torque command signal is based on applying a compensator to said torque command signal.

Claim 19. The method of Claim 18 wherein said compensator is responsive to a blend scheduling signal, wherein coefficients of said compensator are based on said blend scheduling signal.

Claim 20. The method of Claim 18 wherein said compensator comprises a filter configured to modify spectral content of said compensated torque command signal.

Claim 21. The method of Claim 20 wherein said filter comprises at least one of: at least one pole, at least one pole and at least one zero, and a schedulable gain.

Claim 22. The method of Claim 20 wherein said compensator comprises a frequency based notch filter configured to maintain stability of a torque control of said electric power steering system.

Claim 23. The method of Claim 14 wherein said blend comprises a selectable threshold for scheduling a combination of said torque command signal and said compensated torque command signal.

Claim 24. The method of Claim 14 wherein said blend comprises a combination of said torque command signal and said compensated torque command signal, said combination responsive to a blend scheduling signal.

Claim 25. The method of Claim 14 wherein said scheduled compensated torque command is configured to facilitate characterization of at least one of: system stability, torque disturbance rejection; and input impedance.

Claim 26. The method of Claim 14 wherein said scheduled compensated torque command is configured to characterize on-center feel of said torque control of said electric power steering system.

Claim 27. A storage medium encoded with a machine-readable computer program code;

 said code including instructions for causing a computer to implement a method for controlling an electric power steering system, the method comprising:

 receiving a torque command signal;

 receiving a vehicle speed signal responsive to a speed of a vehicle; and

 generating a scheduled compensated torque command, said scheduled compensated torque command based on at least one of said torque command signal, a compensated torque command signal, and a blend of said torque command signal and said compensated torque command signal, wherein at least one of said torque command signal, said compensated torque command signal and said blend is based on said vehicle speed signal.

Claim 28. A computer data signal comprising:

 said computer data signal comprising code configured to cause a processor to implement a method for controlling an electric power steering system, the method comprising:

 receiving a torque command signal;

 receiving a vehicle speed signal responsive to a speed of a vehicle; and

 generating a scheduled compensated torque command, said scheduled compensated torque command based on at least one of said torque command signal, a compensated torque command signal, and a blend of said torque command signal and said compensated torque command signal, wherein at least one of said torque command signal, said compensated torque command signal and said blend is based on said vehicle speed signal.

Claim 29. An electric power steering control system comprising:

 a means for detecting a vehicle speed and generating a speed signal indicative thereof;

 a means for receiving said torque command signal;

 a means for receiving said vehicle speed signal;

 a means for generating a scheduled compensated torque command, said scheduled compensated torque command based on at least one of said torque command signal, a compensated torque command signal, and a blend of said torque command signal and said compensated torque command signal, wherein at least one of said torque command signal, said compensated torque command signal and said blend is based on said vehicle speed signal.